



Presentation to Mayor and City Council

The Long Beach Breakwater Expedited Reconnaissance Phase Study

July 27, 2009

Federally Owned Structure

- The Breakwater is a federally owned and operated structure
 - First authorized in 1930 through the Federal River and Harbor Act
 - Construction began in 1941 on the 2.5 mile eastern leg of the breakwater and was completed in 1949
 - The US Army Corps of Engineers maintains jurisdiction over its modification or removal

History

- July 5, 2005 City Council Request
 - Requested the federal government to conduct a one-year reconnaissance study
 - Goal was to determine if there is a federal interest in a study of a reconfiguration of the Long Beach Breakwater
 - No federal funding was allocated in the FY 07 or FY 08 federal budgets

City's Efforts Unprecedented

- July 24, 2007: City Council voted to approve up to \$100,000 in Tidelands monies to fund the reconnaissance study
 - \$50,000 from Coastal Conservancy, pending a federal appropriation.
- Long Beach's efforts are unprecedented
 - Neither local nor D.C. Army Corps staff are aware of another instance where a city has conducted its own Reconn study

Study Process

- **Moffatt & Nichol selected June 17, 2008 through a competitive process.**
- **Moffatt & Nichol have extensive experience in conducting Reconnaissance studies.**
- **Study began August 2008, and was completed within the usual 12 months timeframe**
- **No new research usually completed, but Moffatt & Nichol went above and beyond what is usually included in a Reconn Study.**

Federal Breakwater System



Can reconfiguring the LB Breakwater restore our beaches?



Back in the Good Ol' Days...



Copied from www.lbsurfrider.org



Copied from sinkthebreakwater.blogspot.com



The Breakwater is a federally owned
and operated structure

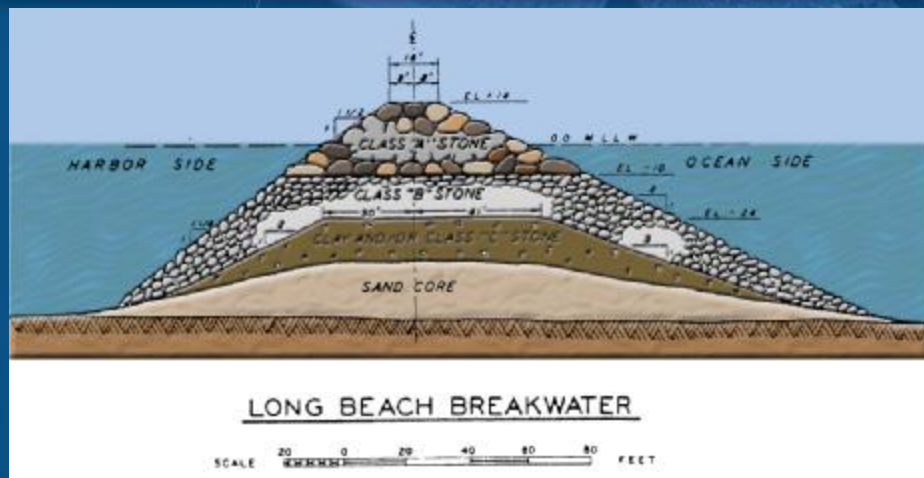


The Breakwater is a federally owned
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SP-584. Roosevelt Base, Terminal Island, California. 29 Sept. 1941; 2:05 p.m. Tide +4.2 ft. Contract N0y-4279. Item 18. Floating derricks No. E-600 (right) and No. 4 (left) placing Riverside "A" rock on outer breakwater.

Breakwater Profile View



Purpose of recon study is to determine potential for federal interest



COE Policy for Ecosystem Restoration

- Restore to Less-Degraded, More Natural Conditions
- Full Integration with Social and Economic Goals
- Consider from Watershed Perspective
- Coordination with Missions of Other Agencies
- Recreational Economic Benefits Incidental from Federal Perspective

Long Beach Breakwater Reconfiguration Study

Becomes...

East San Pedro Bay Ecosystem Restoration Study

Local sponsors must also be aware of potential costs

- Fed is driving the bus since their breakwater
- City also have mission and goals
 - Improve water quality
 - Improved water-related recreation
 - Improve tourism
- Feasibility study is a 50-50 cost sharing arrangement with the Fed
- Locals responsible for 35% of construction costs

Reconnaissance Study Scope

Reconnaissance Study is the First Step...

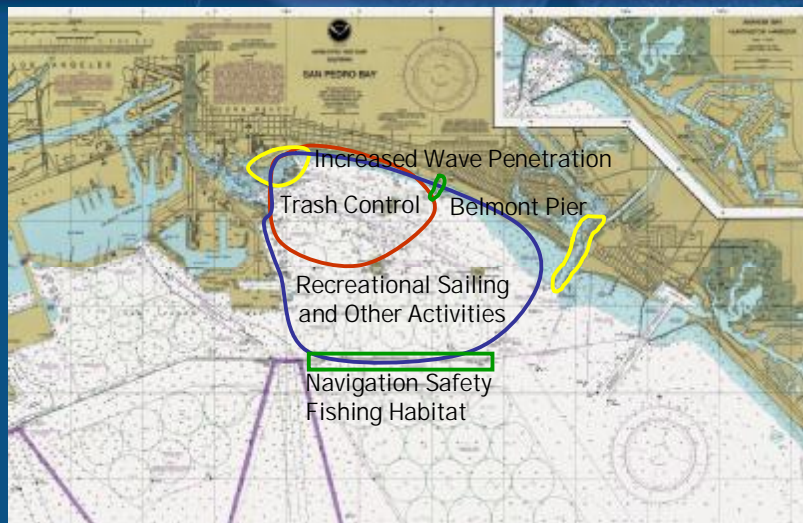
- Public Workshops
- Stakeholder / Resource Agency Meetings
- Develop and Analyze Alternatives
- Prepare 905b and PMP Reports

Result: Basis for Go/No Go for Feasibility Study

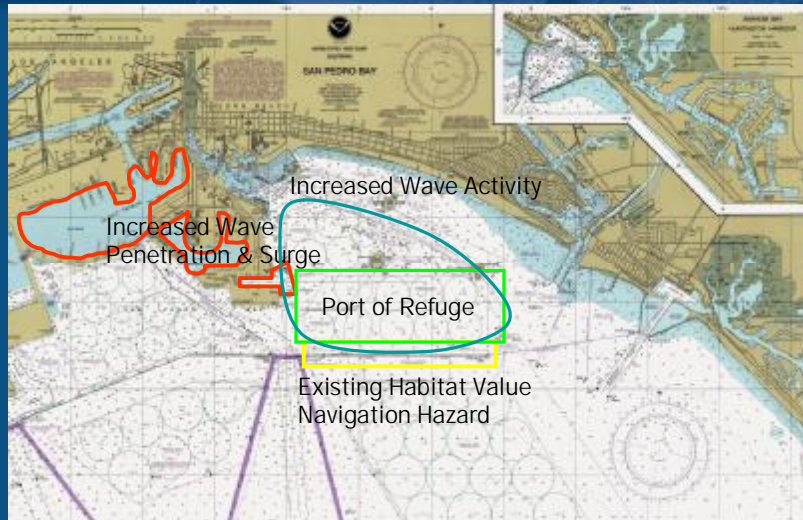
Stakeholder Issues: Surfrider Foundation

- Want beach like Seal, Huntington Beach, South Bay – the difference is waves
- Want to improve water quality and reduce trash and debris
- Want to improve sediment quality along the shoreline
- Want to consider reduced breakwater height and opportunities to plant kelp
- Want economic benefit of a cleaner beach

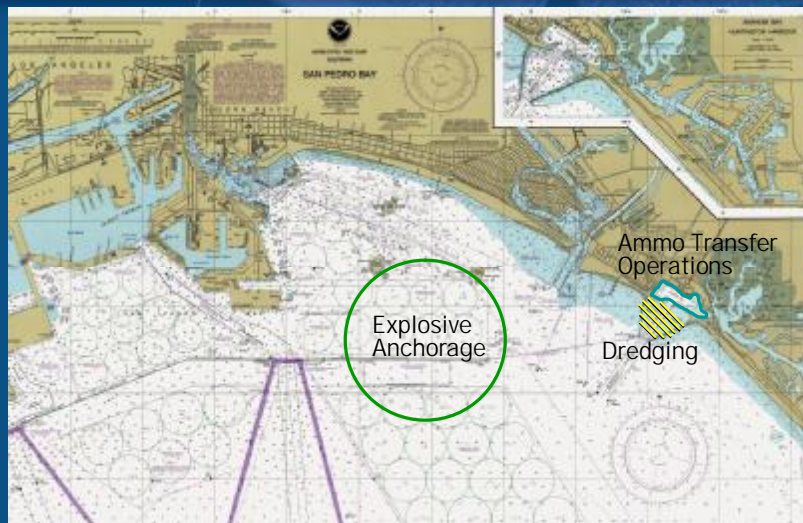
Stakeholder Issues: LB Lifeguards & Marinas



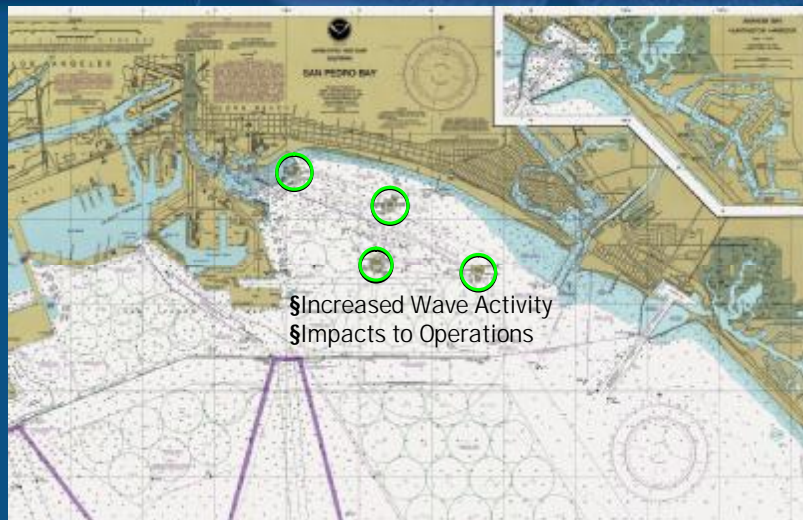
Stakeholder Issues: Port of Long Beach / Port Pilots / Port Operators / USCG



Stakeholder Issues: U.S. Navy – Seal Beach Naval Weapons Station



Stakeholder Issues: THUMS



Stakeholder Issues: City of Seal Beach



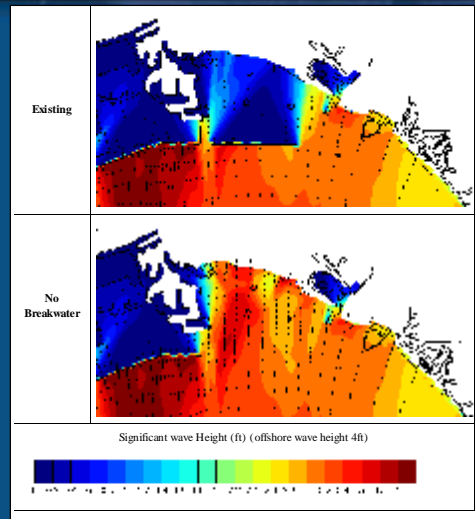
Stakeholder Issues: Peninsula Beach Preservation Group



What impact does the breakwater have on waves and circulation?



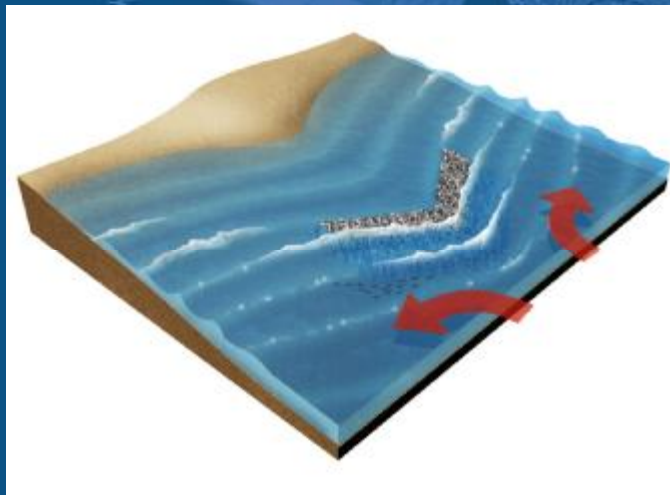
Breakwater is just that... a breakwater



Is it feasible to reconfigure the Long Beach Breakwater?

- Restoration of nearshore to open coast habitat
- Improved transport of river sediments and contaminants away from the beach and nearshore habitat
- Improved benthic habitat
- Restored rocky shallow water habitat
- Restored kelp habitat
- Reduction of bacterial water quality exceedences on the beach

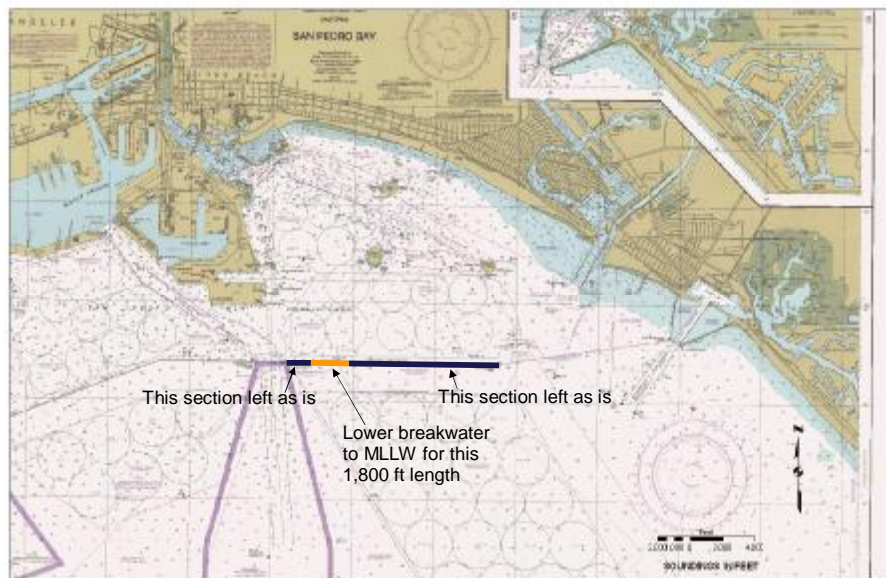
Nearshore Reef Concept



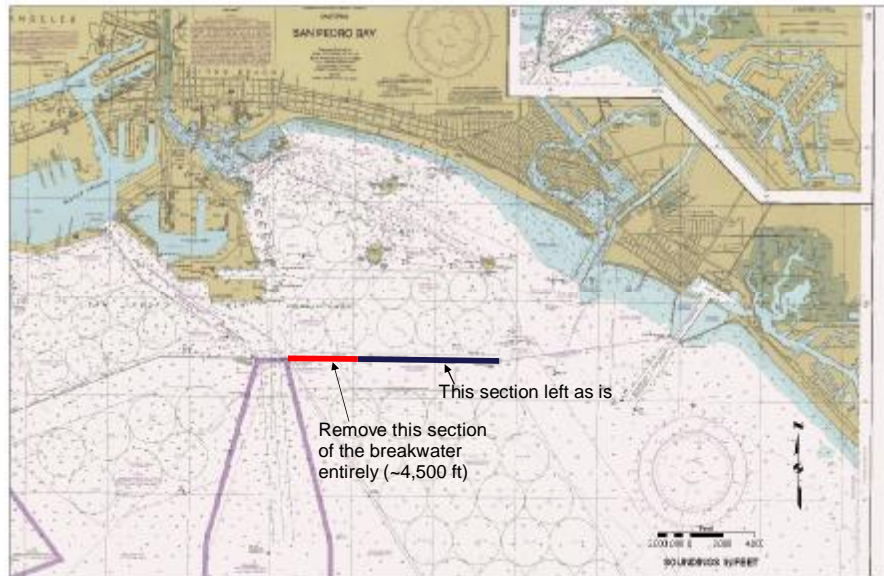
Kelp Reef Restoration



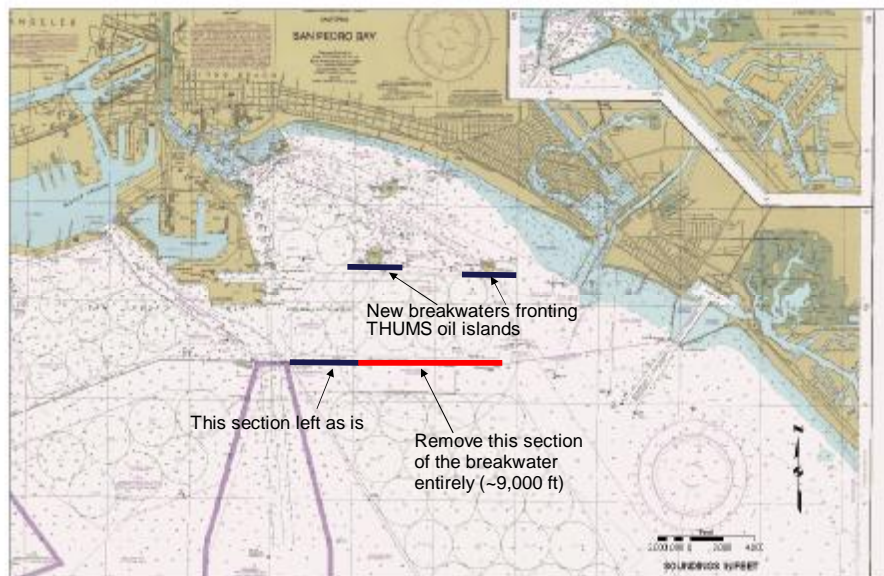
Alternative 1



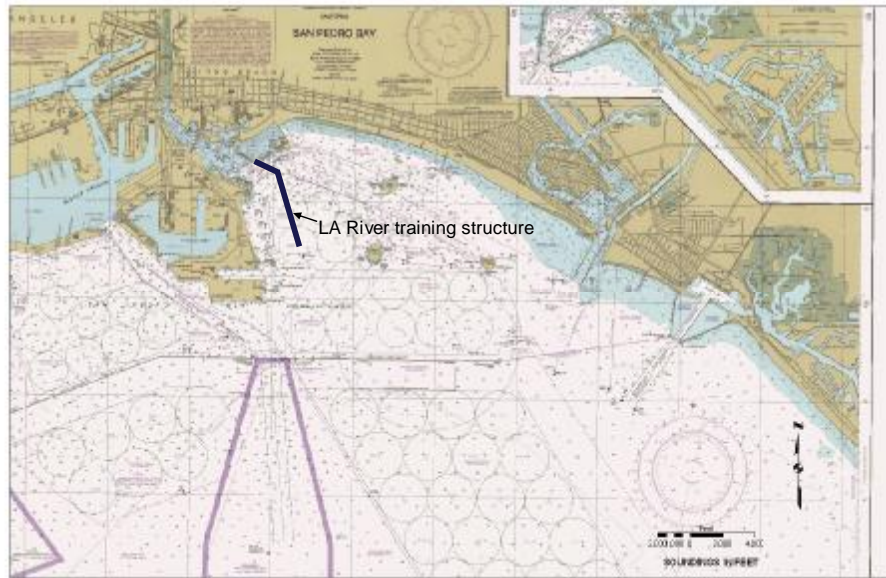
Alternative 2



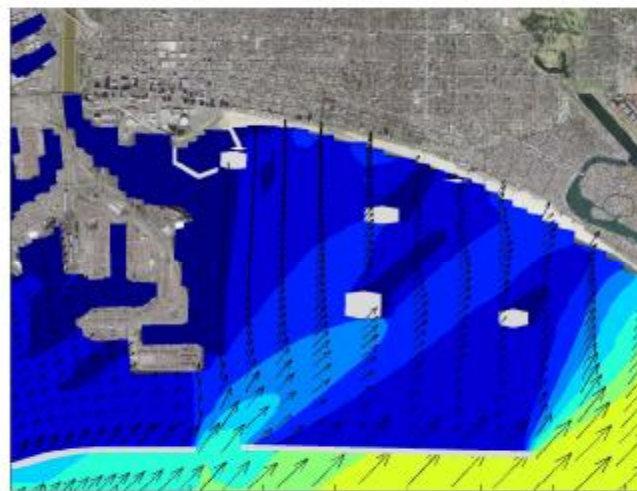
Alternative 3



Alternative 4

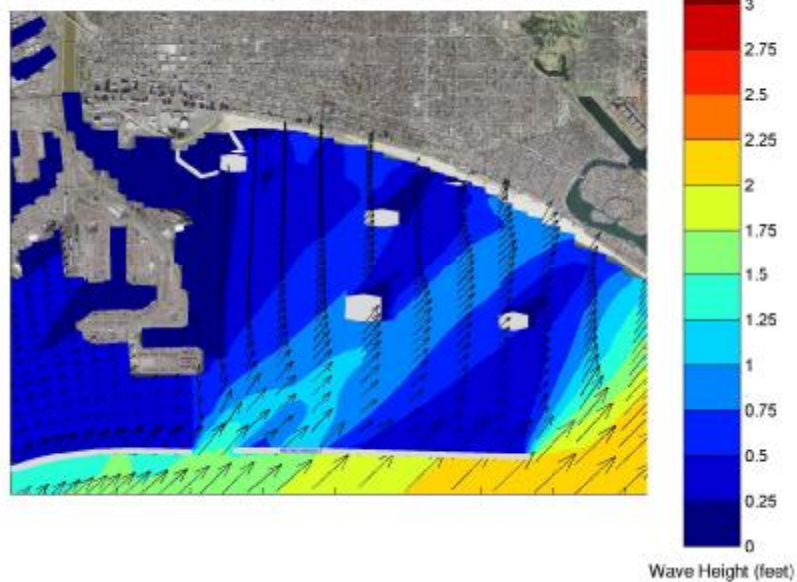


Existing Conditions - Wave Height and Mean Direction - West Waves

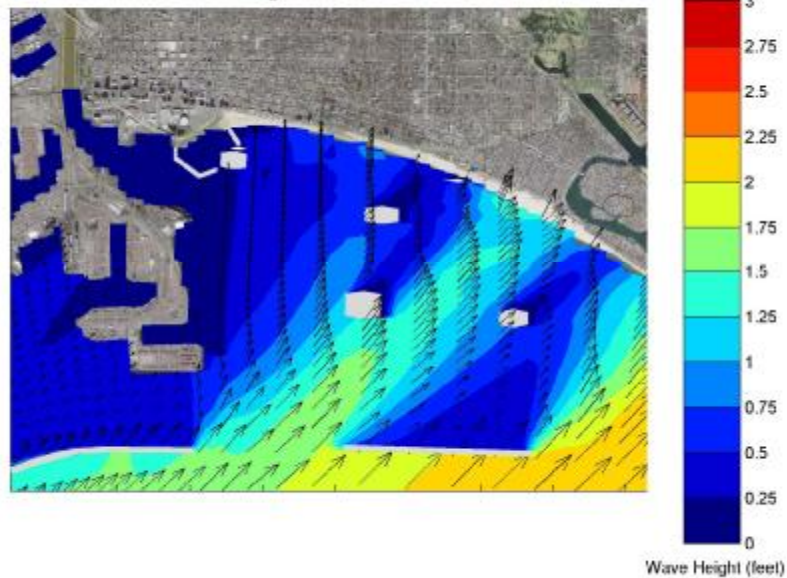


Wave Height (feet)

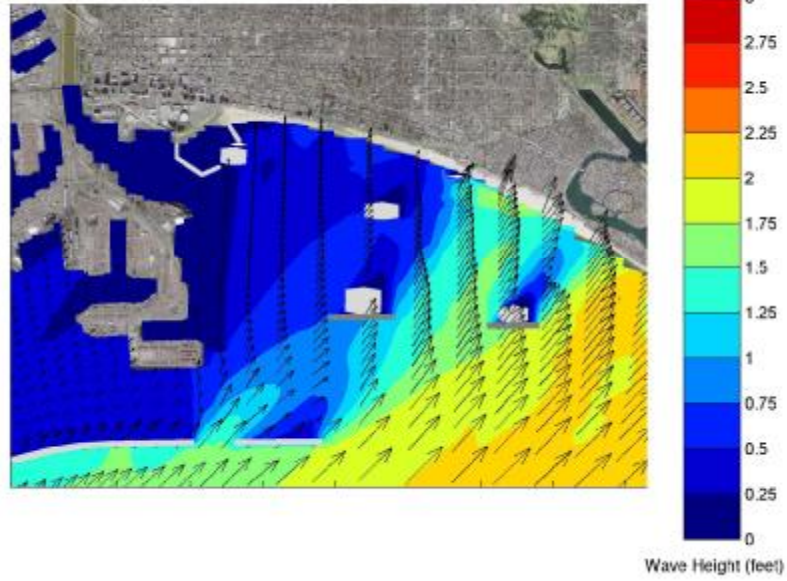
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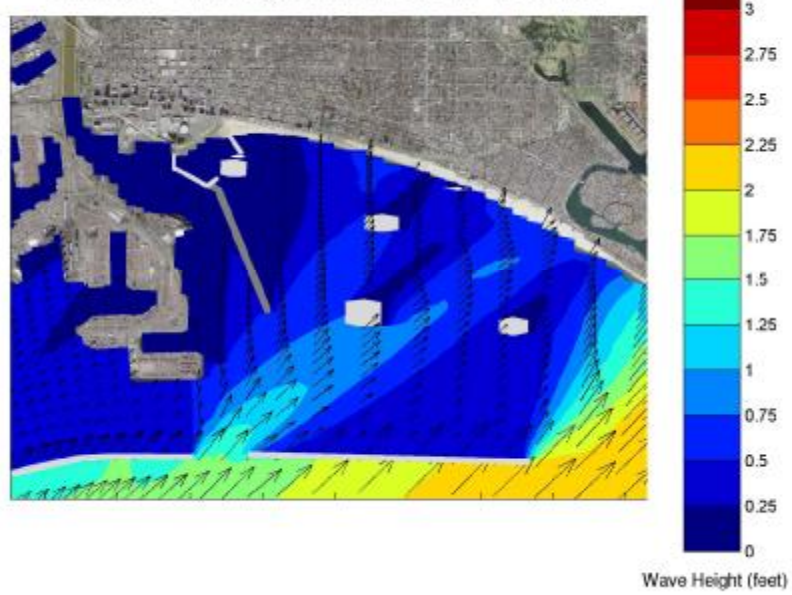
Alternative 2 - Wave Height and Mean Direction - West Waves



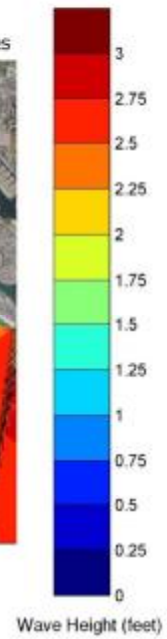
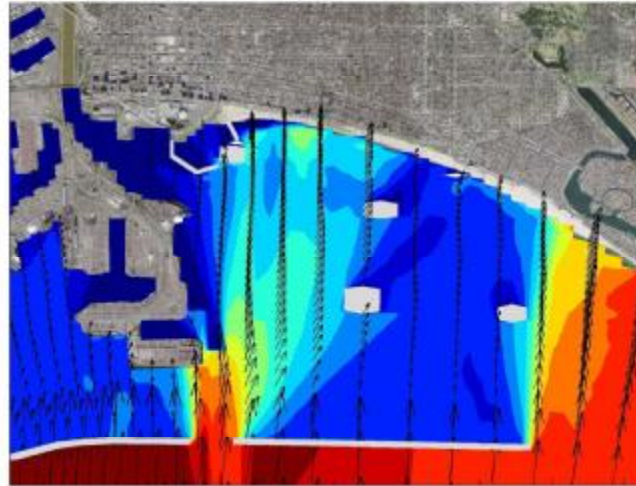
Alternative 3 - Wave Height and Mean Direction - West Waves



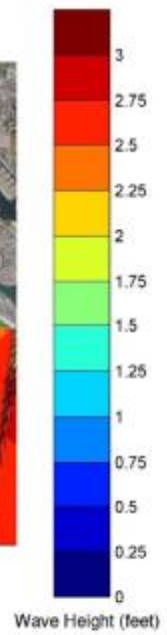
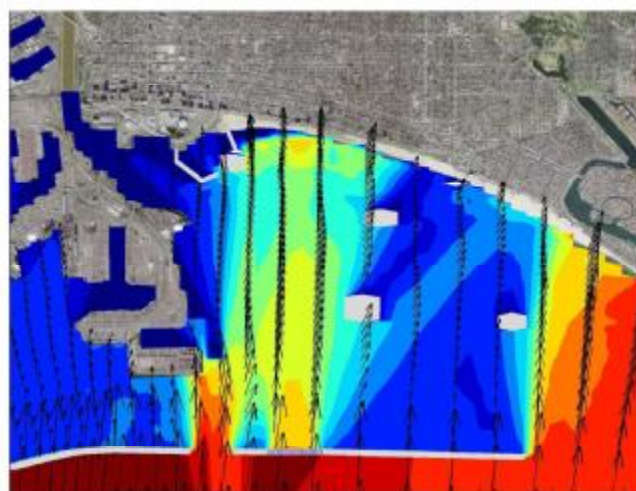
Alternative 4 - Wave Height and Mean Direction - West Waves



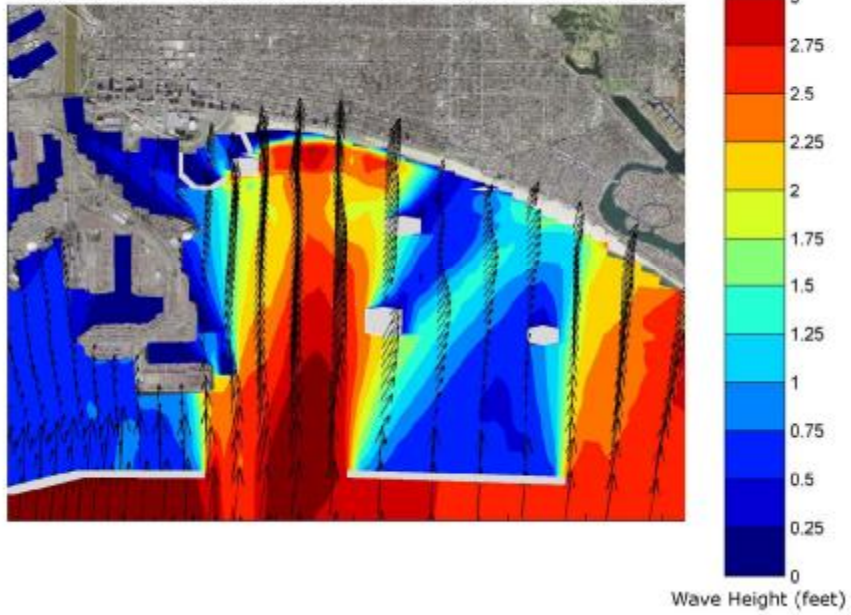
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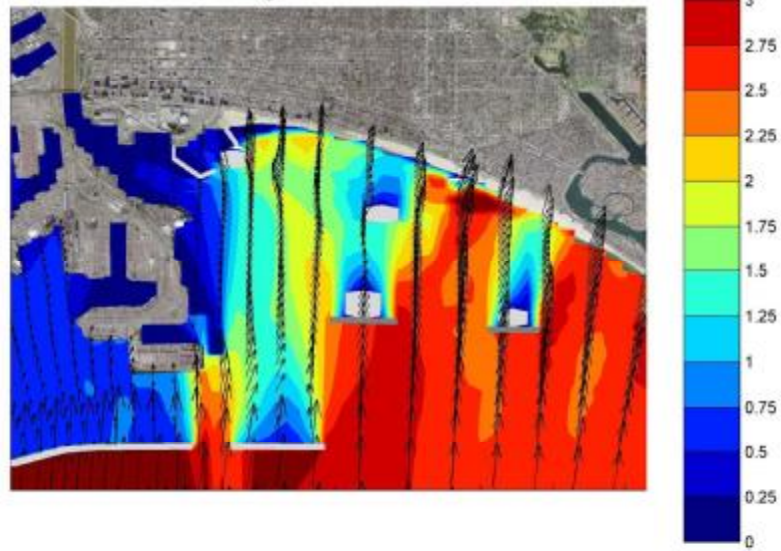
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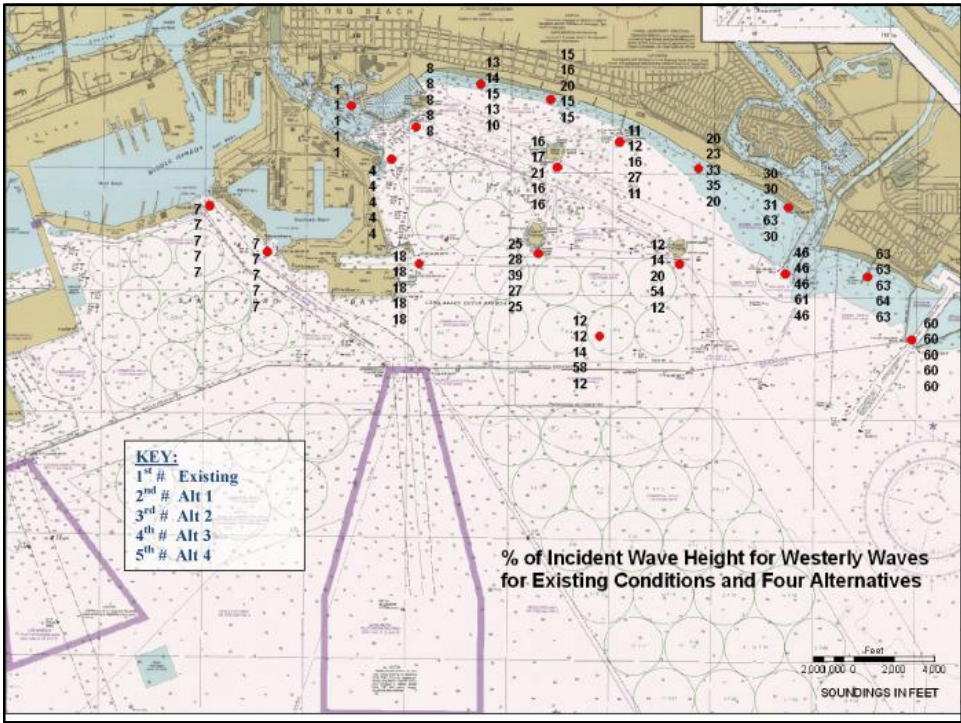
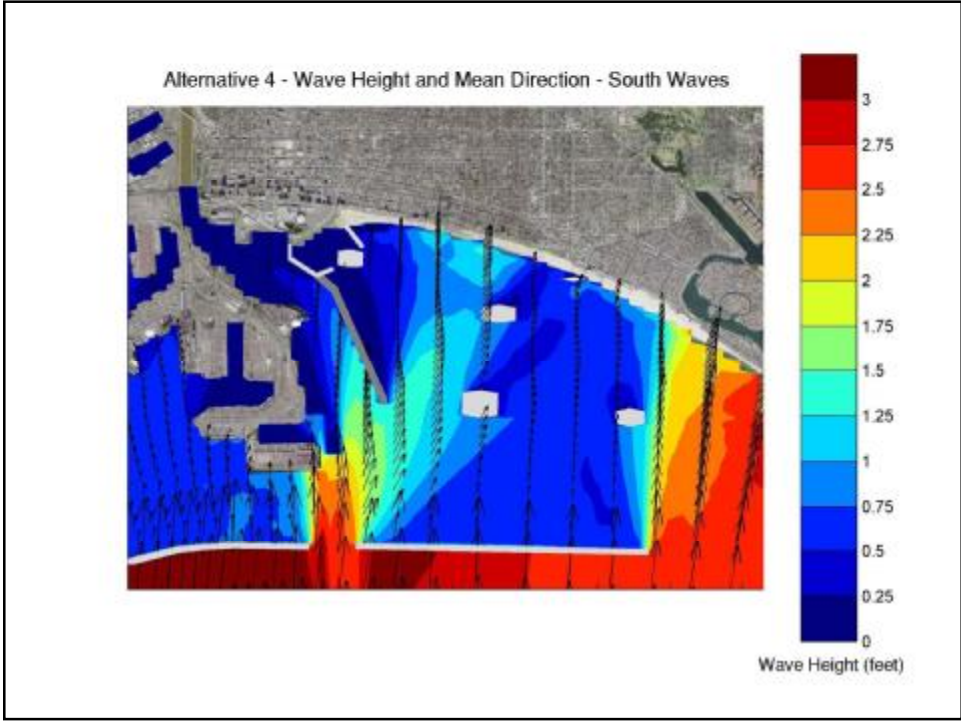


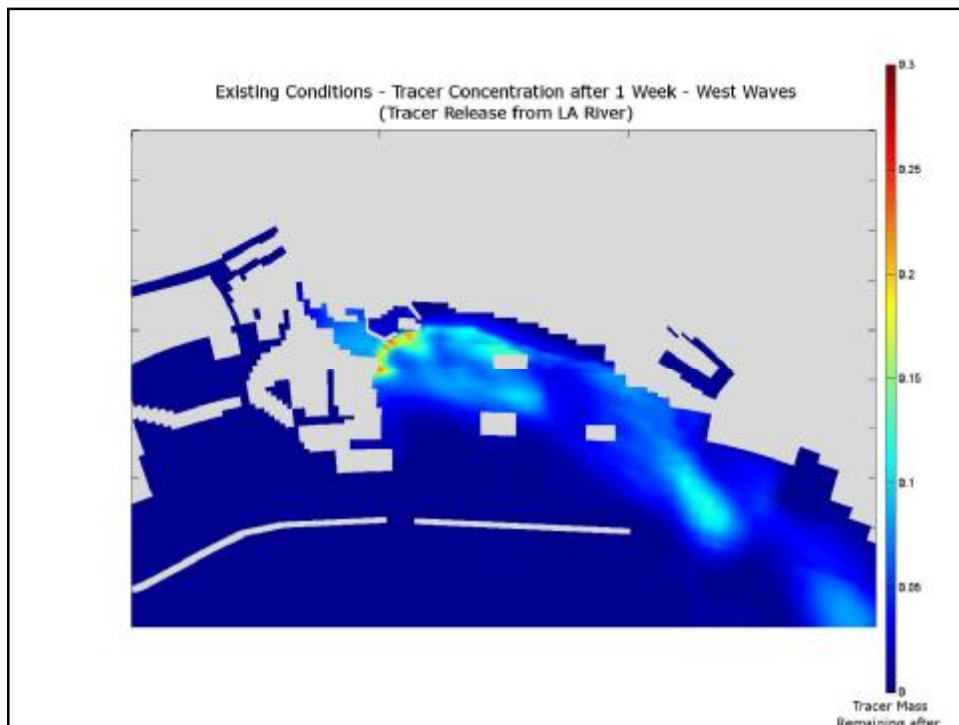
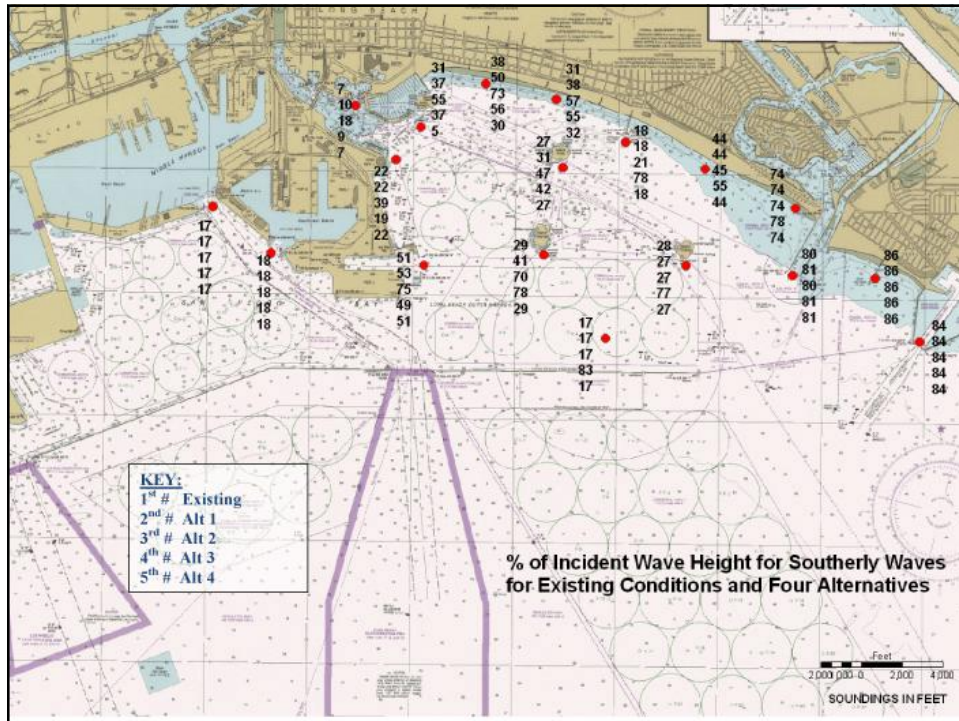
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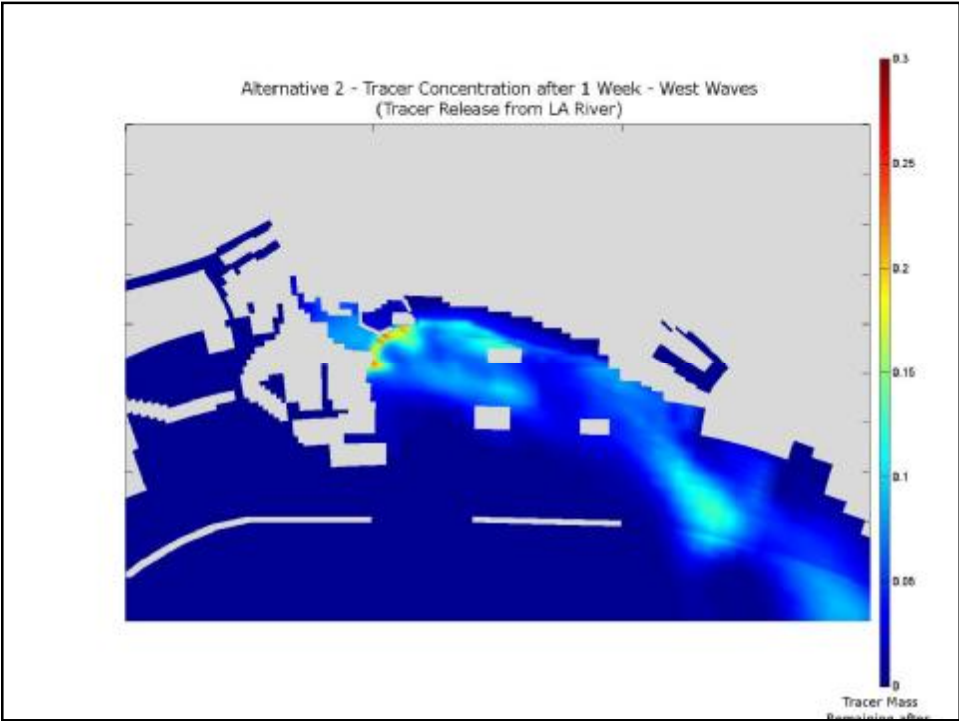
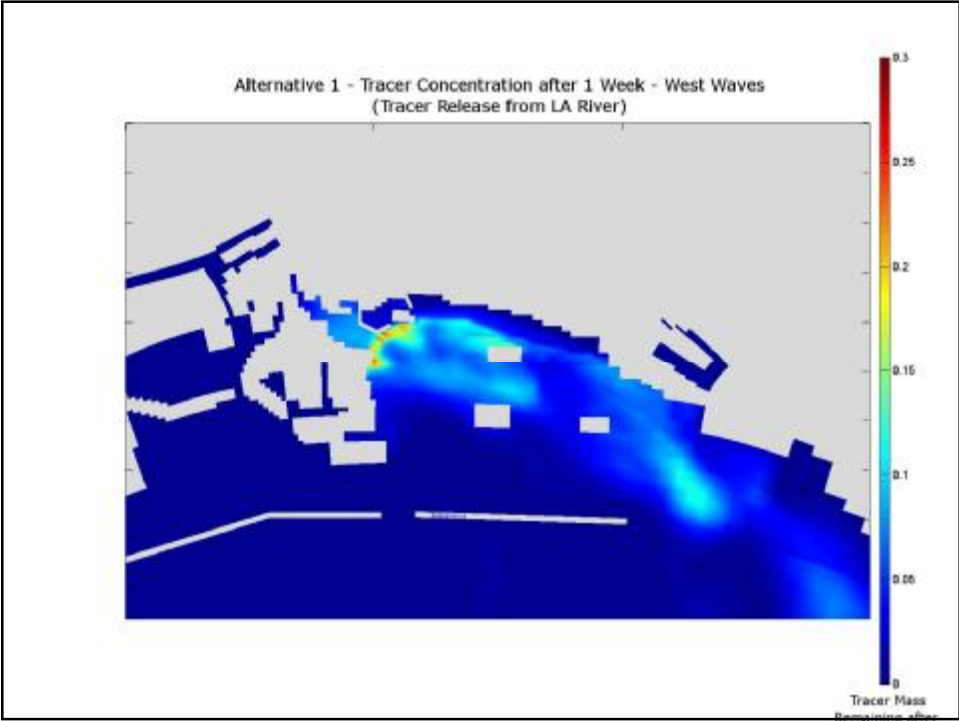


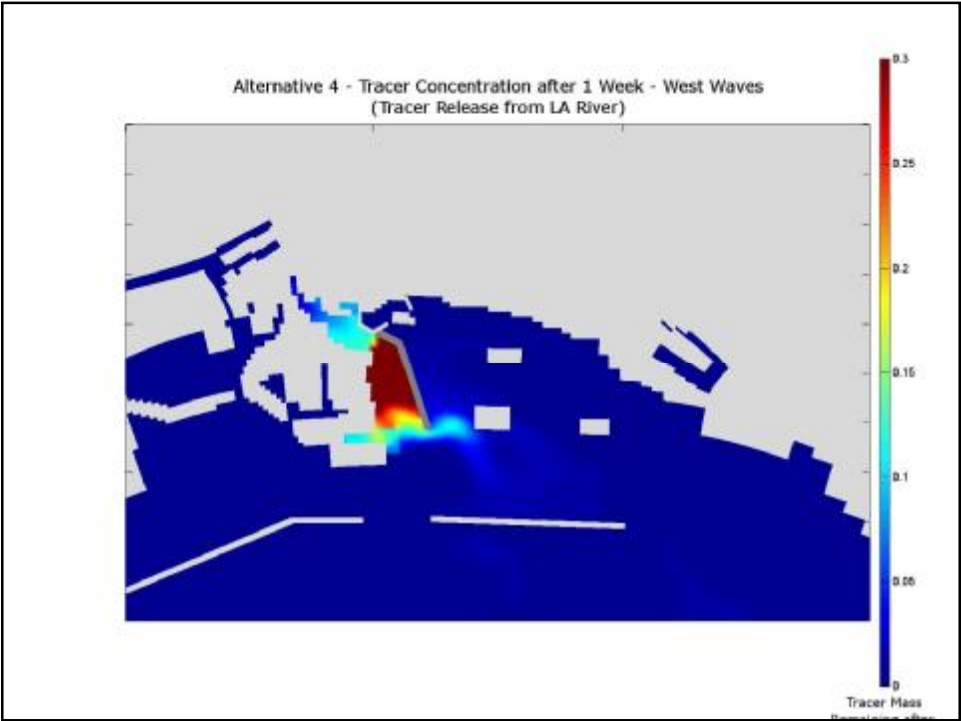
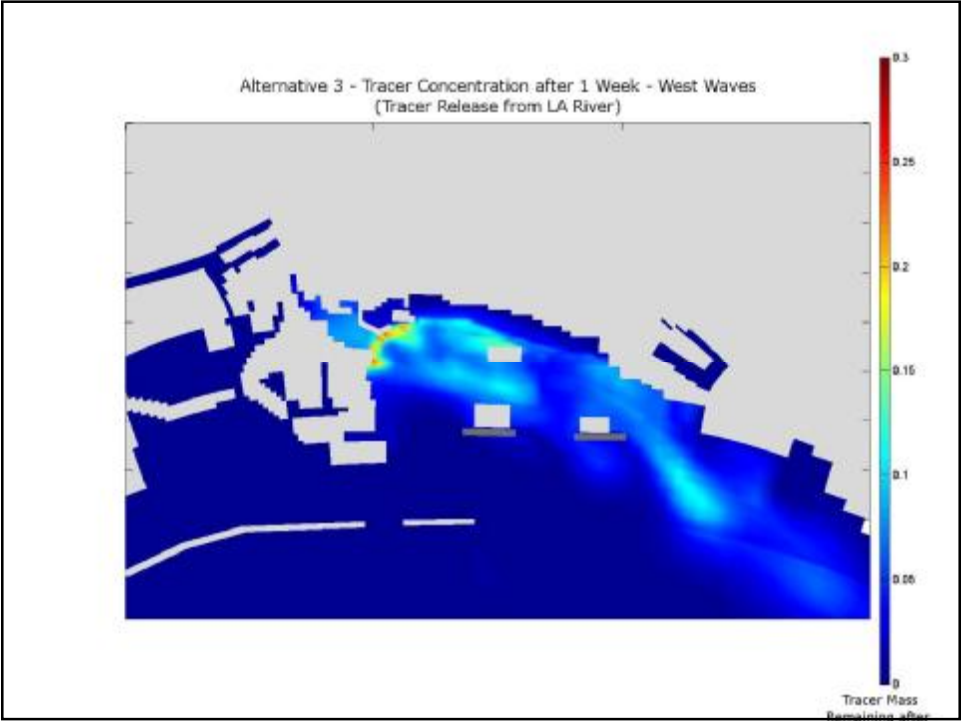
Alternative 3 - Wave Height and Mean Direction - South Waves

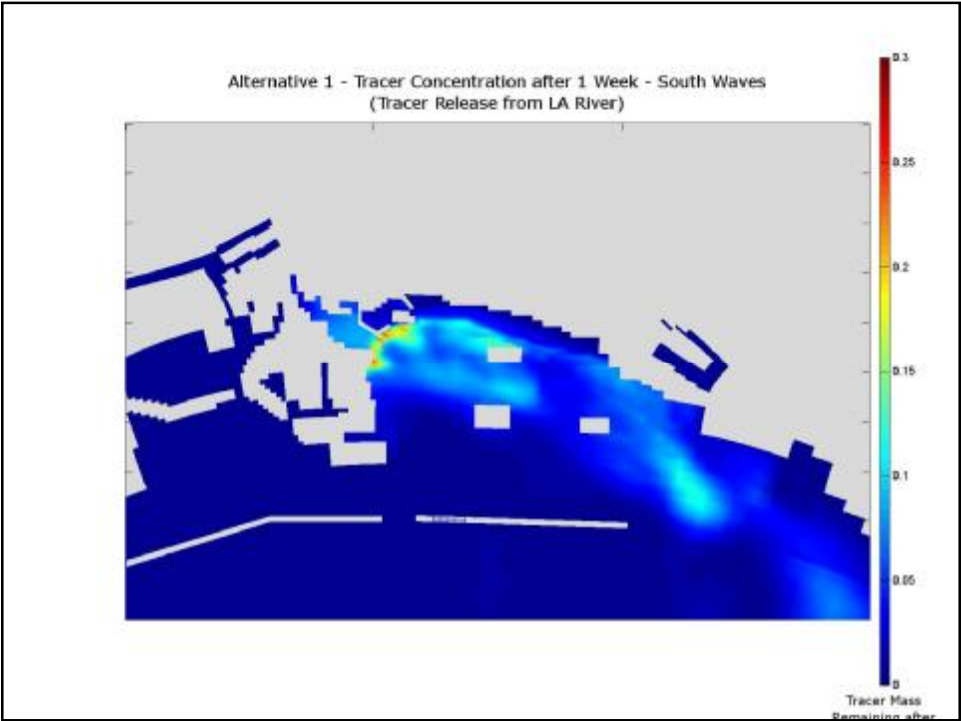
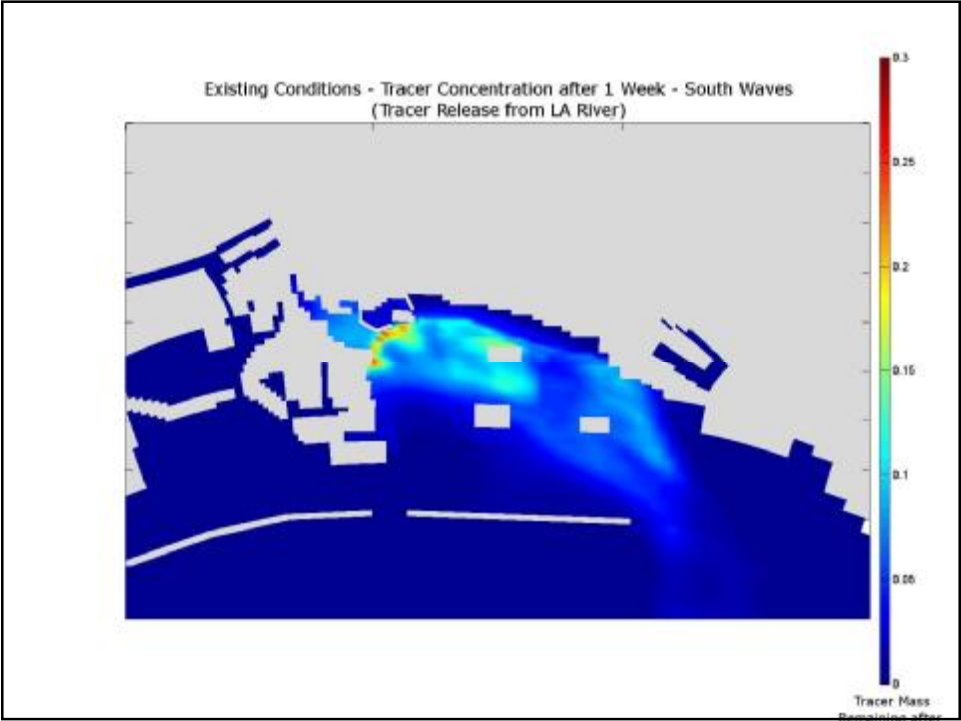


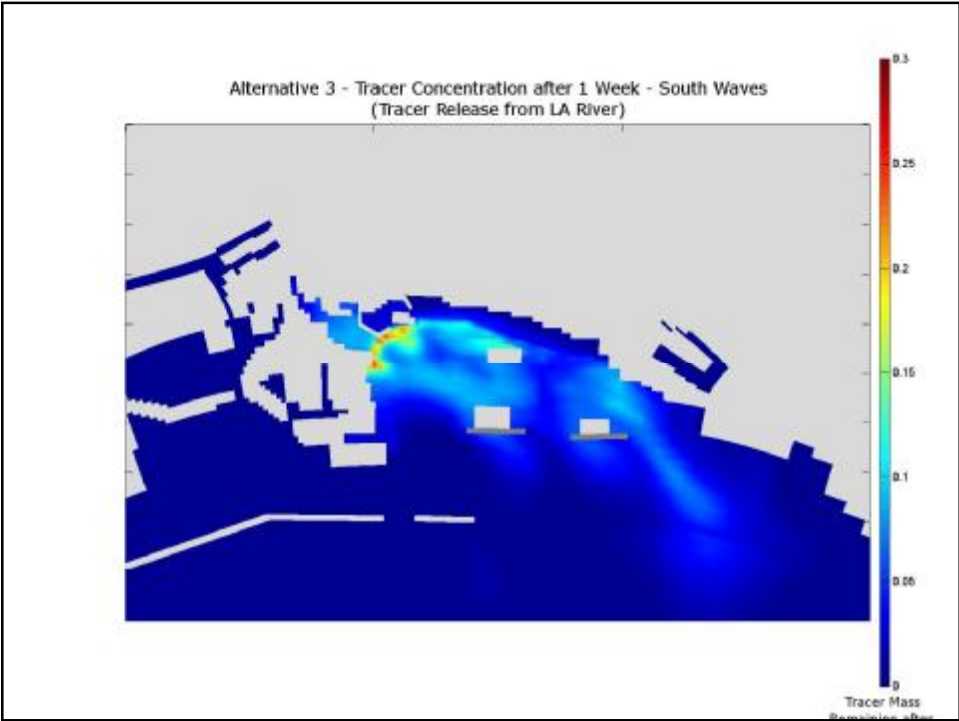
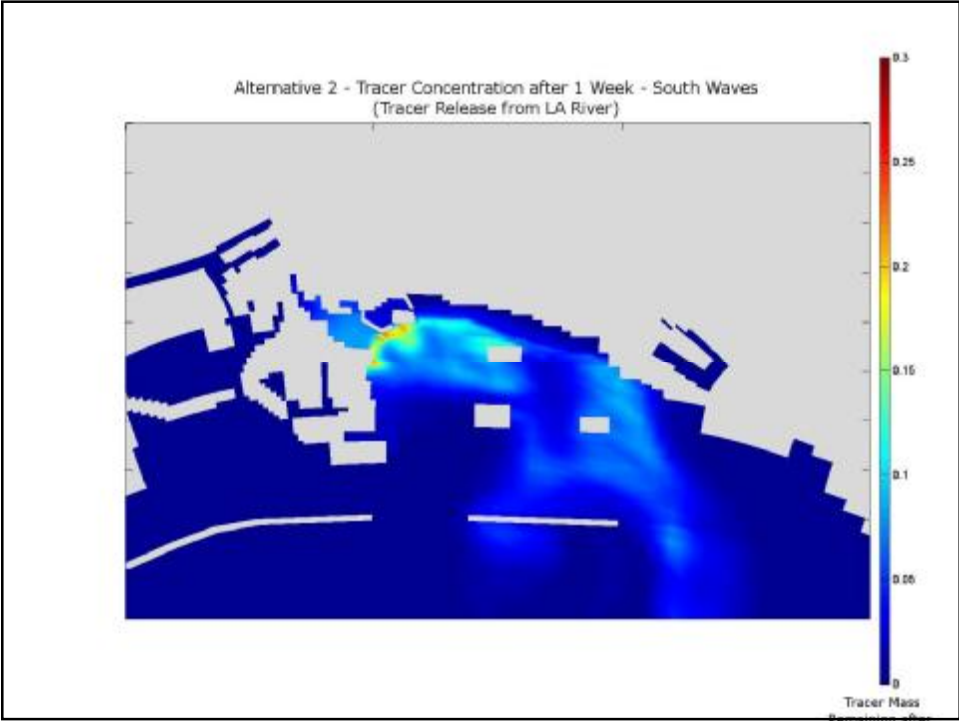


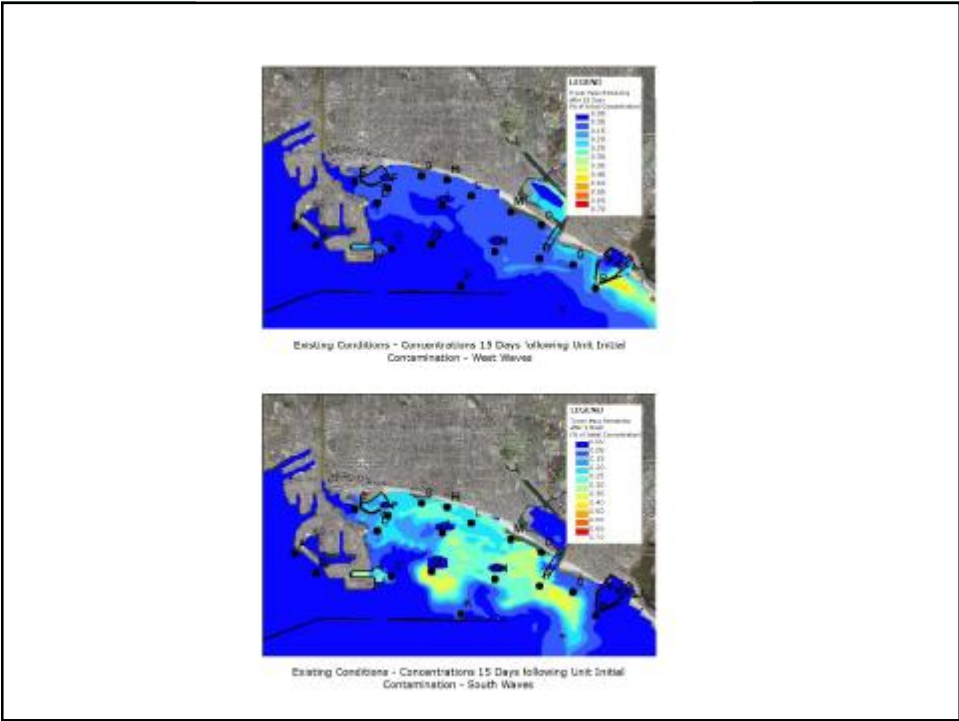
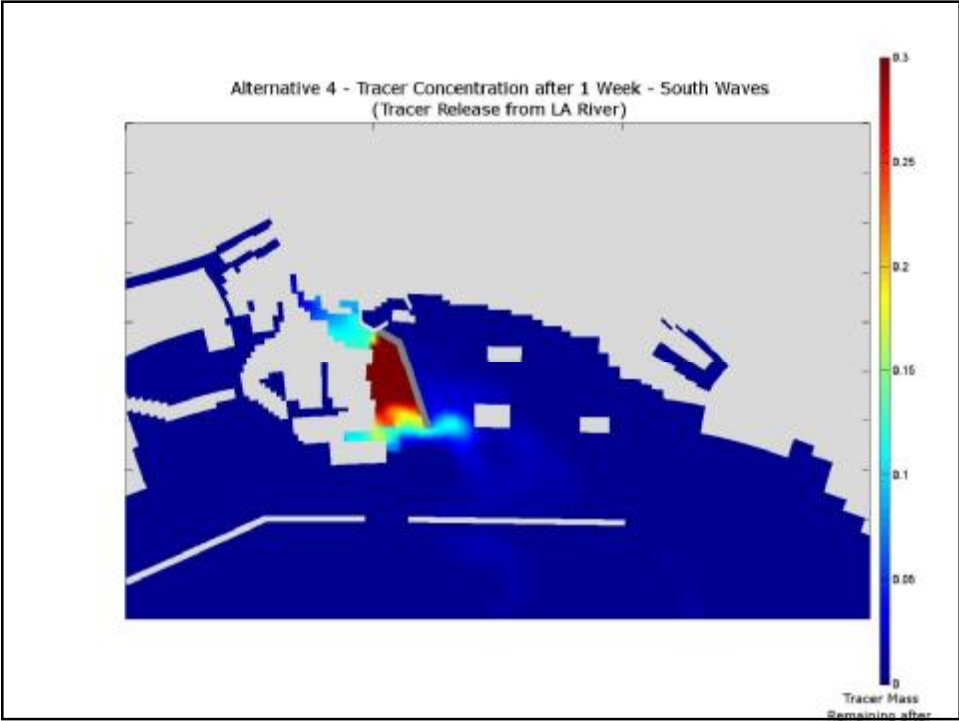


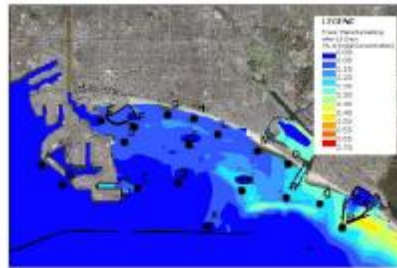




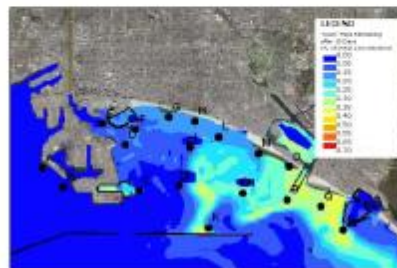




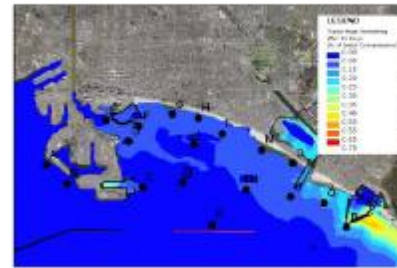




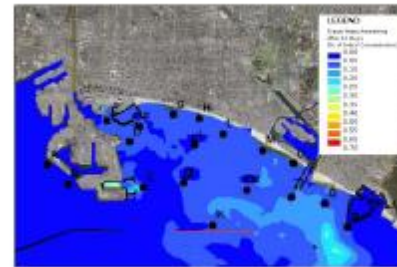
Alternative 1 - Concentrations 15 Days following Unit Initial Contamination - West Wakes



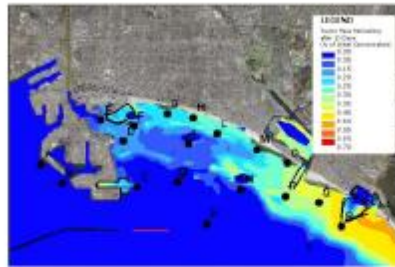
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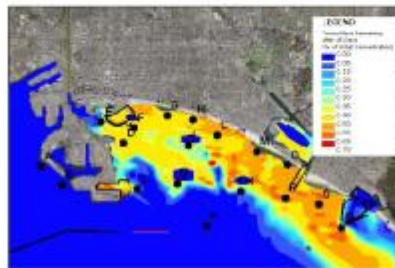
Alternative 2 - Concentrations 15 Days following Unit Initial Contamination - West Wakes



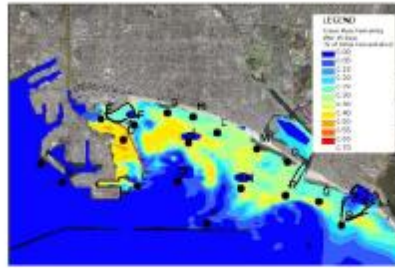
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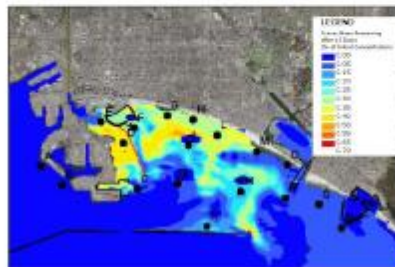
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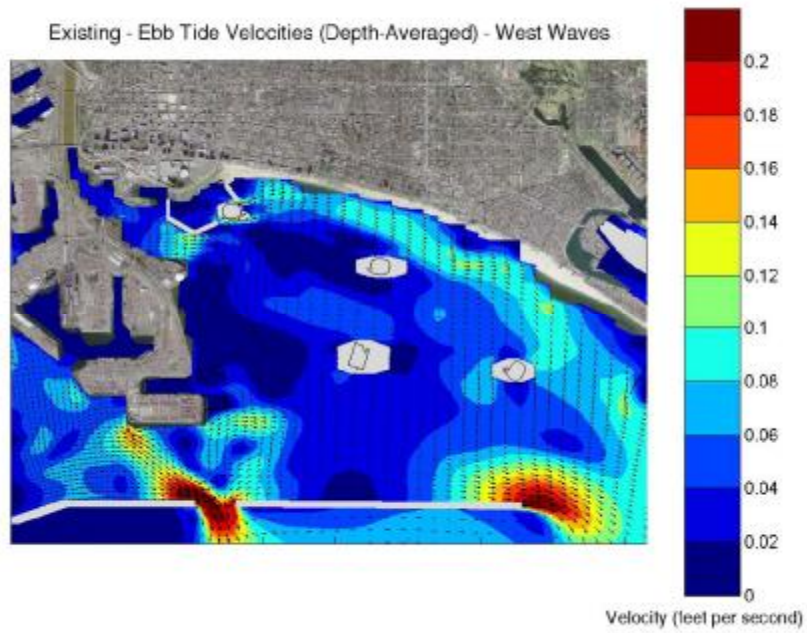


Alternative 4 - Concentrations 15 Days following Unit Initial Contamination - West Waves

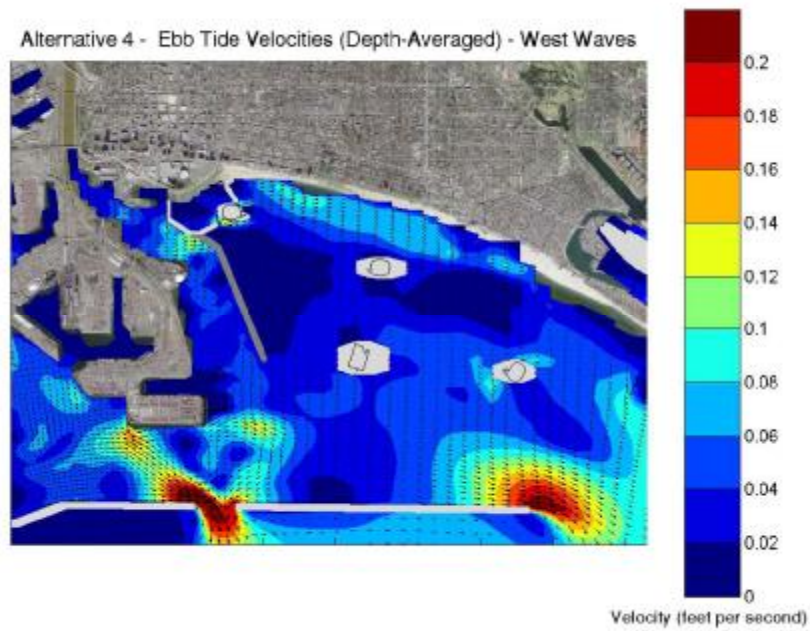


Alternative 4 - Concentrations 15 Days following Unit Initial Contamination - South Waves

Existing - Ebb Tide Velocities (Depth-Averaged) - West Waves



Alternative 4 - Ebb Tide Velocities (Depth-Averaged) - West Waves



Construction Costs (Not All Mitigation Costs Included)

ALTERNATIVE	CONSTRUCTION COST
1A – Lower 1800' to MLLW	\$11M
2A – Remove 4500' West End	\$114M
2B – 2A w/ LAR Training Structure	\$216M
3A – Staggered Breakwaters	\$254M
3B – 3A w/ LAR Training Structure	\$309M
4 – LAR Training Structure – Imported Stone	\$136M
5 – Kelp Reef & Shallow Reef – Imported Stone	\$48M

Ecosystem Benefits

- Restoration of Shallow Rocky Reef Habitat (20 to 310 Ac)
- Restoration of Historic Kelp Habitat (up to 500 Ac)
- Improved Water Quality / Water Clarity

Economic Benefits

Maximum Potential Benefits Include...

- Additional 3 Million Beachgoers Annually
- \$500M Federal Benefits (Discounted Present Value – 50 Year Life)
- \$27M Federal Benefits (Annualized)
- Local Benefits:
 - \$52M Annual Spending Increase
 - \$7M Annual Taxes and Parking Fees

Can reconfiguring the LB Breakwater restore our beaches?



Next Steps

- Require federal appropriation to review the City's study
 - Rep. Richardson has secured \$100,000 in the House Appropriations bill.
- Feasibility study will cost \$7 million over 4 years
 - City's share will be 50%, or \$3.5 million, and can consist of other non-federal funding sources.
 - City Council likely will need make a decision by early 2010.

Feasibility Study

- Based on reconnaissance study results and local sponsor financial commitment
- Investigates and identifies solutions, which could differ from initial assessment
- Develops conceptual designs, assesses available data, and collect necessary new data
- Full Environmental Assessment
- Consultations with DOD, DOT, and Coast Guard
- Creates a cost estimate for construction

Thank You

- Mayor and City Council
- Stakeholders for their participation
- Army Corps of Engineers
- Moffatt & Nichol's Team
- Study Development Team
 - Tom Leary, Stormwater Management Officer
 - Nelson Kerr, Acting Manager / Environmental Health
 - Sandra Gonzalez, PRM Manager of Planning/Development
 - Dennis Eschen, former PRM Manager of Planning/Development
 - Chris Kroll, Coastal Conservancy
 - Courtney Aguirre, Management Assistant